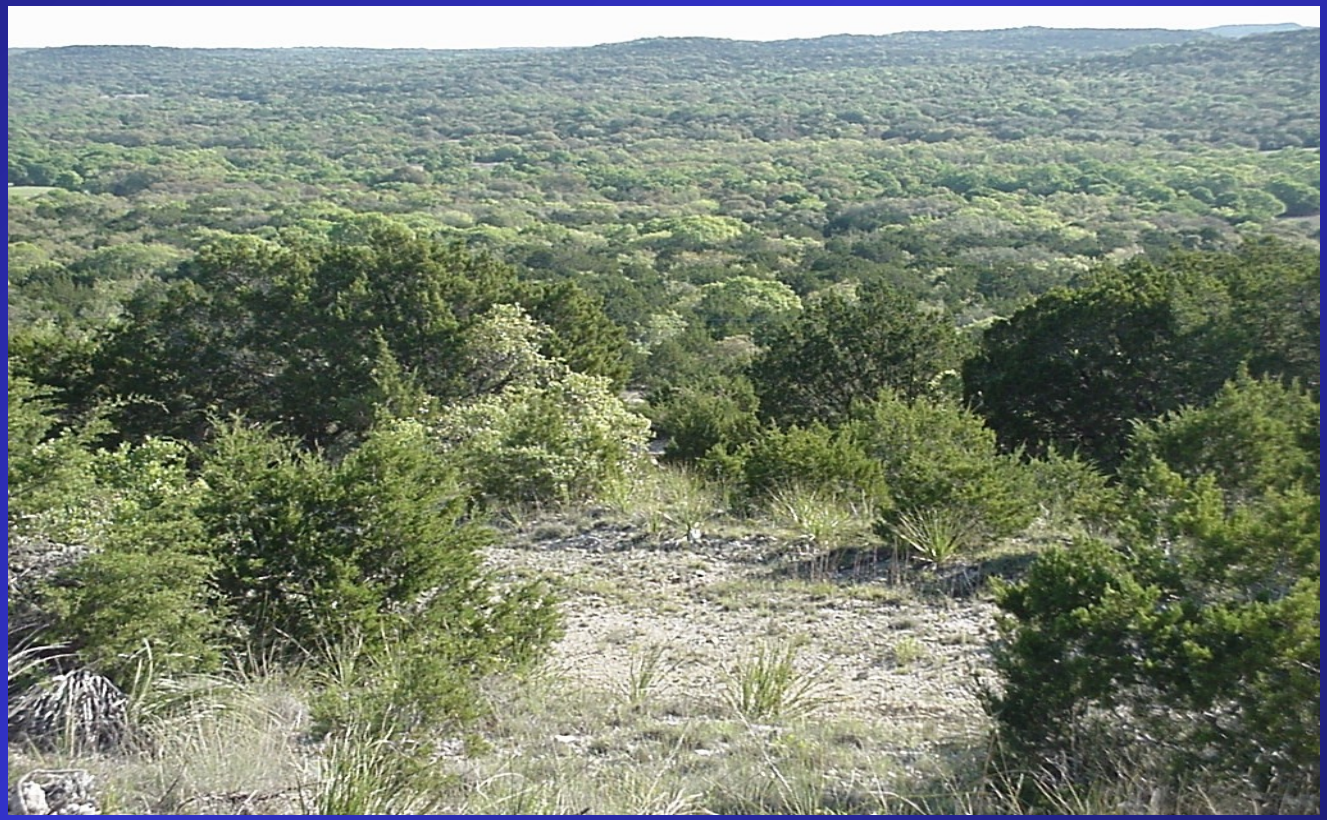
US Army Corps
of Engineers

Cibolo Creek Watershed Study



One Corps Serving The Army and The Nation

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Cibolo Creek Watershed Study

Cost-Share Study Sponsors

GBRA

San Antonio River Authority

San Antonio Water System

Technical Study Team

USGS science for a changing world

NRCS Natural Resources Conservation Service

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Format of Meeting

- Power point presentation
- Open house displays
- Comments
  - Written on comment cards
  - Oral at comment table
- Meeting adjourned by 9:00 pm

Purpose of Meeting

- Inform the public about the study
- Solicit comments from public about issues within the basin
- National Environmental Policy Act (NEPA) compliance

Cibolo Creek Watershed Study

Agenda

Study Overview

- General Overview
- Phase 1 Summary
- Phase 2 Progress
- What's to come
  - *Phase 3 - Formulation of Alternatives & Detailed Feasibility Studies*

Comments / Questions

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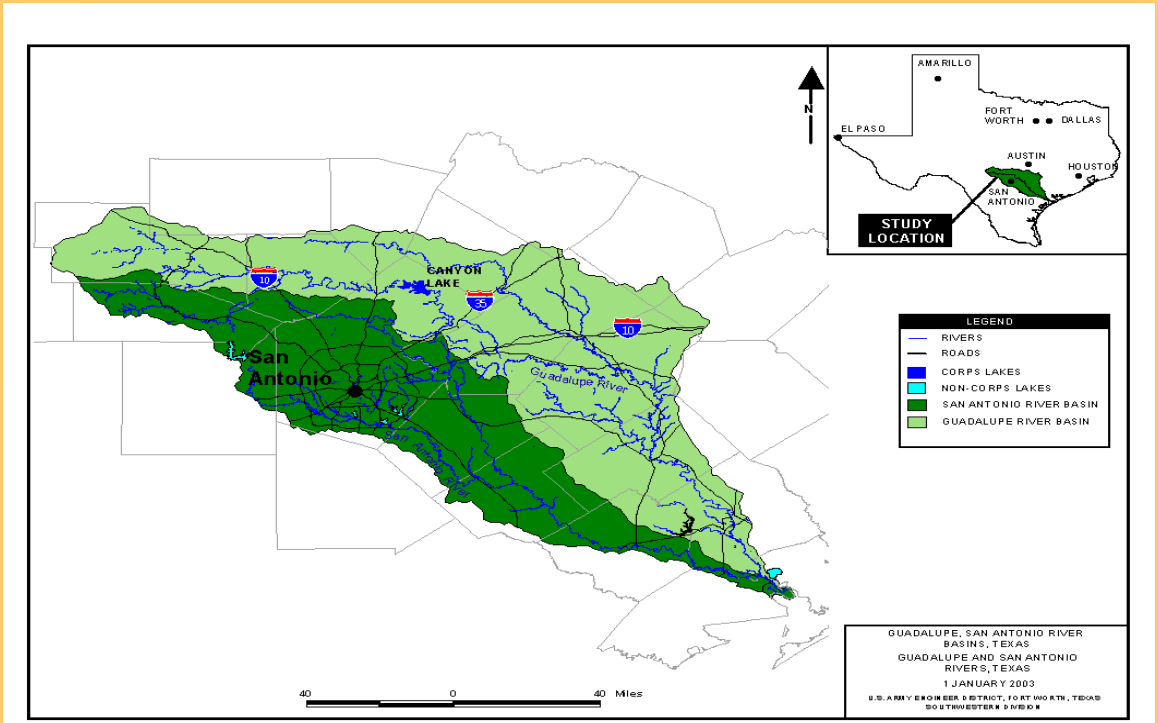
Cibolo Creek Watershed Study
General Overview

Study Authority

House Resolution 2547 dated 11 Mar 98



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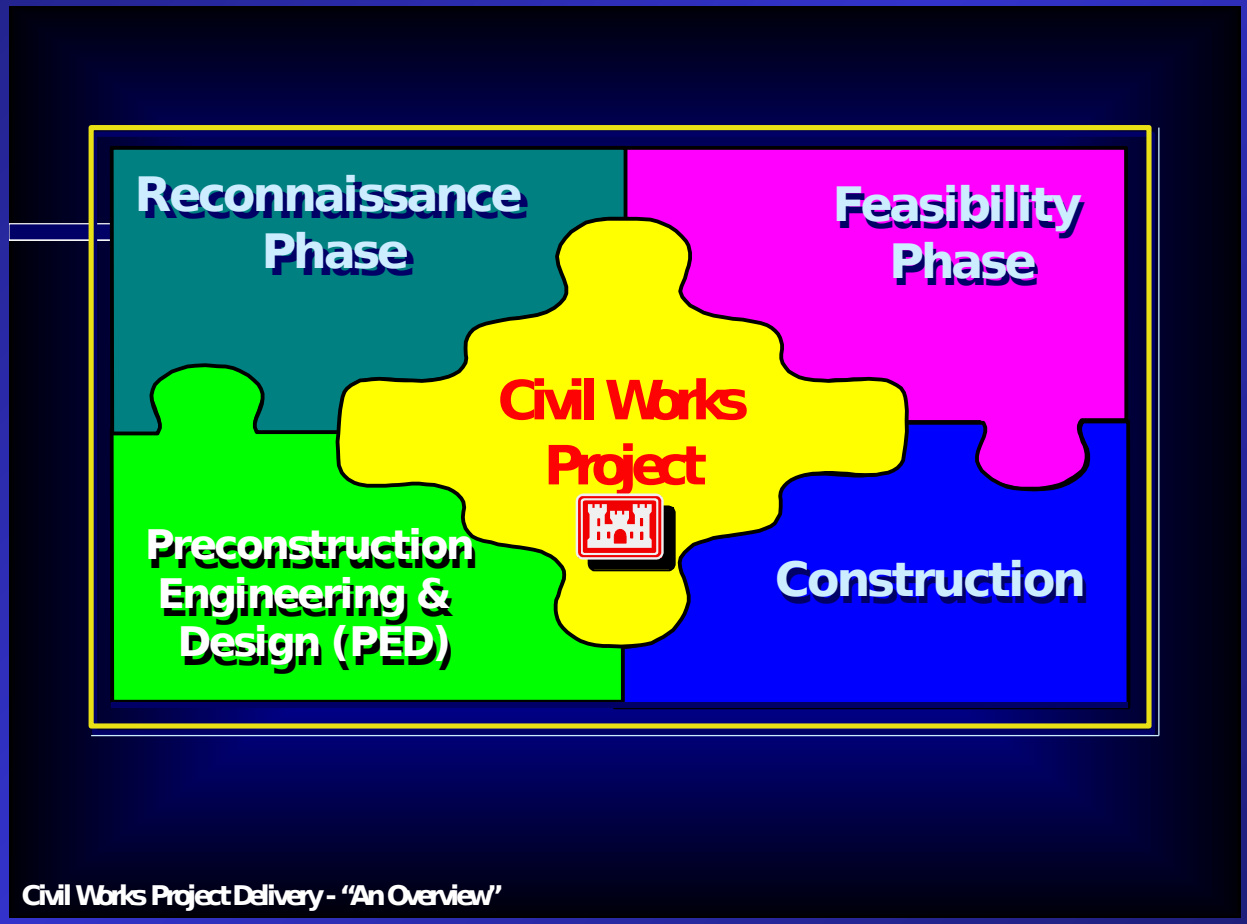
Cibolo Creek Watershed Study
General Overview

US Army Corps of Engineers 1950 50 YEARS 2000 Fort Worth District

Planning Study Process



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Cibolo Creek Watershed Study
General Overview

Study Purpose

- Ecosystem Restoration
  - Aquifer recharge
  - Water Supply
  - Watershed Management
- Flood Damage Reduction

Study Cost - $2.9 M

Study Duration ~ 48 months

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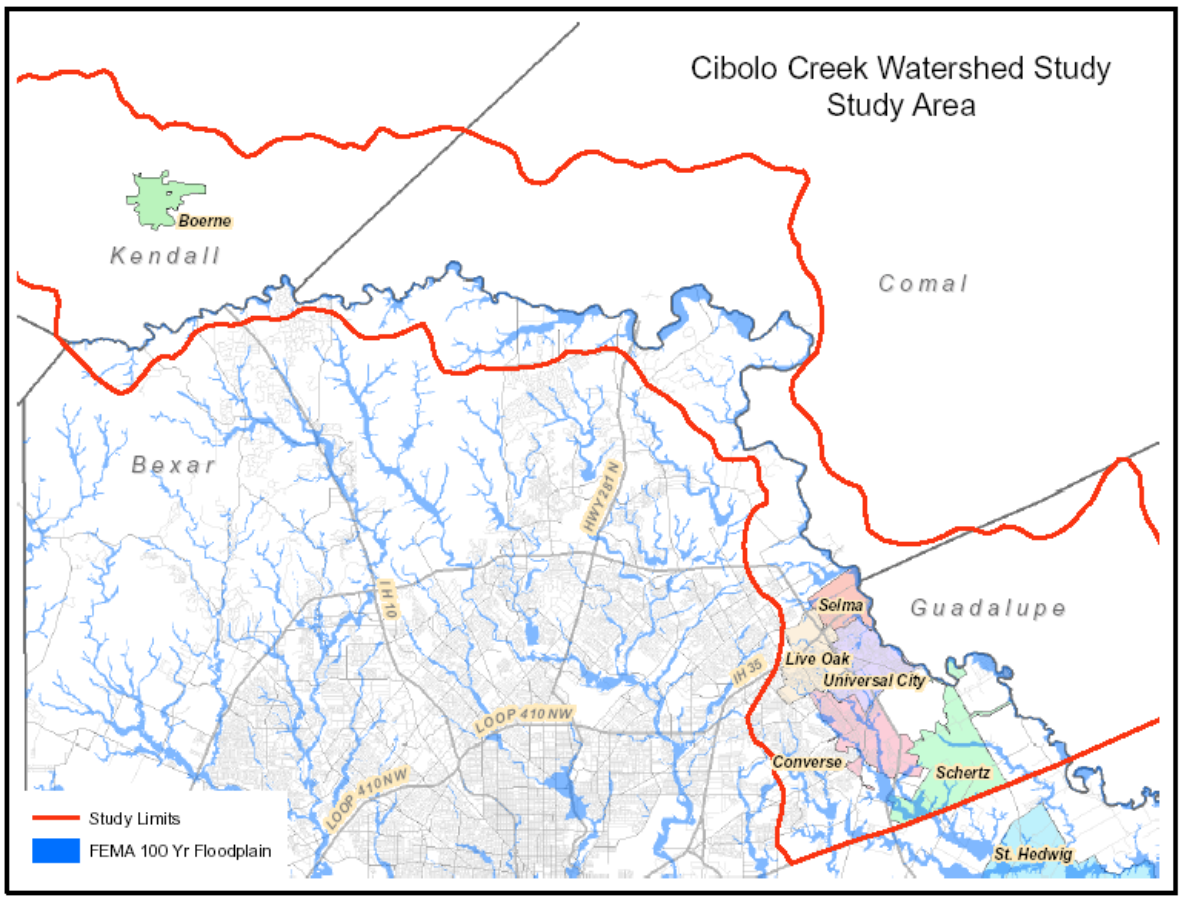
Cibolo Creek Watershed Study
General Overview

Study Limits



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Cibolo Creek Watershed Study
Phase 1

Feasibility Study Phases

- **Phase 1 - Existing Conditions**
- Phase 2 - Evaluate Possible Improvement Scenarios
- Phase 3 - Detailed Evaluation of Alternatives

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Cibolo Creek Watershed Study
General Overview

Feasibility Study Schedule

- Phase 1 - Complete 18 mos. (Mar 02 – Sep 03)
- Phase 2 - In Progress 20 mos. (Feb 04 – Sep 05)
- Phase 3 - ~ 18 - 24 mos.

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Cibolo Creek Watershed Study
Phase 1 Summary

1. Mapping
2. Ecological Analysis/Modeling (Fieldwork/EDYS)
3. Hydrology and Hydraulics
4. HTRW Analysis
5. Environmental Resource Analysis
6. Cultural Resources
7. Flood Damage Assessment
8. Economic Analysis

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Cibolo Creek Watershed Study
Phase 1 Summary

- **The evaluation of the Indicators of Rangeland Health show the health of the rangeland in this watershed to be primarily moderate / slight to moderate in its departure from the ecological site descriptions for the Cibolo Creek watershed**

- **Extreme 5%**
- **Moderate to Extreme 15%**
- **Moderate 30%**
- **Slight to Moderate 31%**
- **None to Slight 20%**

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Cibolo Creek Watershed Study
Phase 1 Summary

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Rating = None to slight

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Cibolo Creek Watershed Study
Phase 1 Summary

Rating = ***Slight to moderate***

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Cibolo Creek Watershed Study
Phase 1 Summary

Rating = Moderate

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Cibolo Creek Watershed Study
Phase 1 Summary

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Rating = Moderate to extreme

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Cibolo Creek Watershed Study
Phase 1 Summary

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Rating = Extreme

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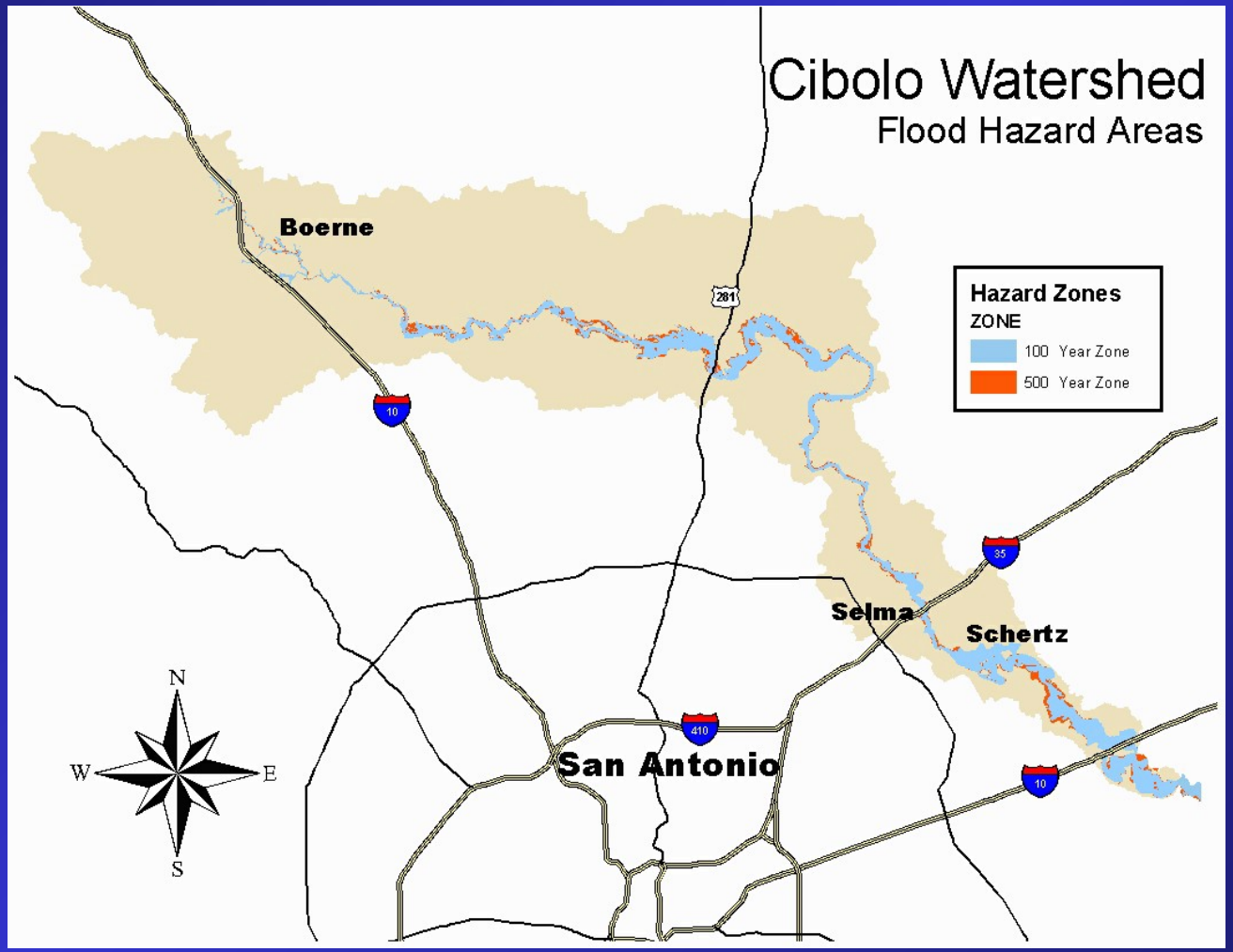
Cibolo Creek Watershed Study
Phase 1 Summary



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Cibolo Creek Watershed Study Phase 2

Feasibility Study Phases

- Phase 1 - Existing Conditions
- **Phase 2 - Evaluate Possible Improvement Scenarios**
- Phase 3 - Detailed Evaluation of Alternatives

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Cibolo Creek Watershed Study Phase 2

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Potential Best Management Practices

- Brush management
- Range Seeding
- Fencing
- Water Development
- Prescribed Grazing
- Prescribed Burning
- Water and Sediment Control Structures
- Ponds
- Wildlife Upland Habitat Management
- Riparian Buffers
- Wetland Creation
- Management of Parking Lot Runoff
- Conservation Cropping Sequence
- Crop Residue Use
- Cover Cropping
- Pest and Nutrient Management
- Contour Buffer Strips
- Irrigation Water Management
- Filter Strips
- Critical Area Shaping and Planting
- Grassed Waterways
- Xeriscaping
- Greenbelts

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Cibolo Creek Watershed Study Phase 2

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Areas Where BMP Could be Considered

- Grazing and Ranch Lands
- Croplands
- Urban Areas
- Urban-Residential Areas
- Urban-Commercial Areas

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Cibolo Creek Watershed Study Phase 2

Recharge Structures

- The study expects to analyze what ecosystem restoration and water supply benefits would be derived from recharge structures

- In addition, the recharge structures would have flood damage reduction benefits

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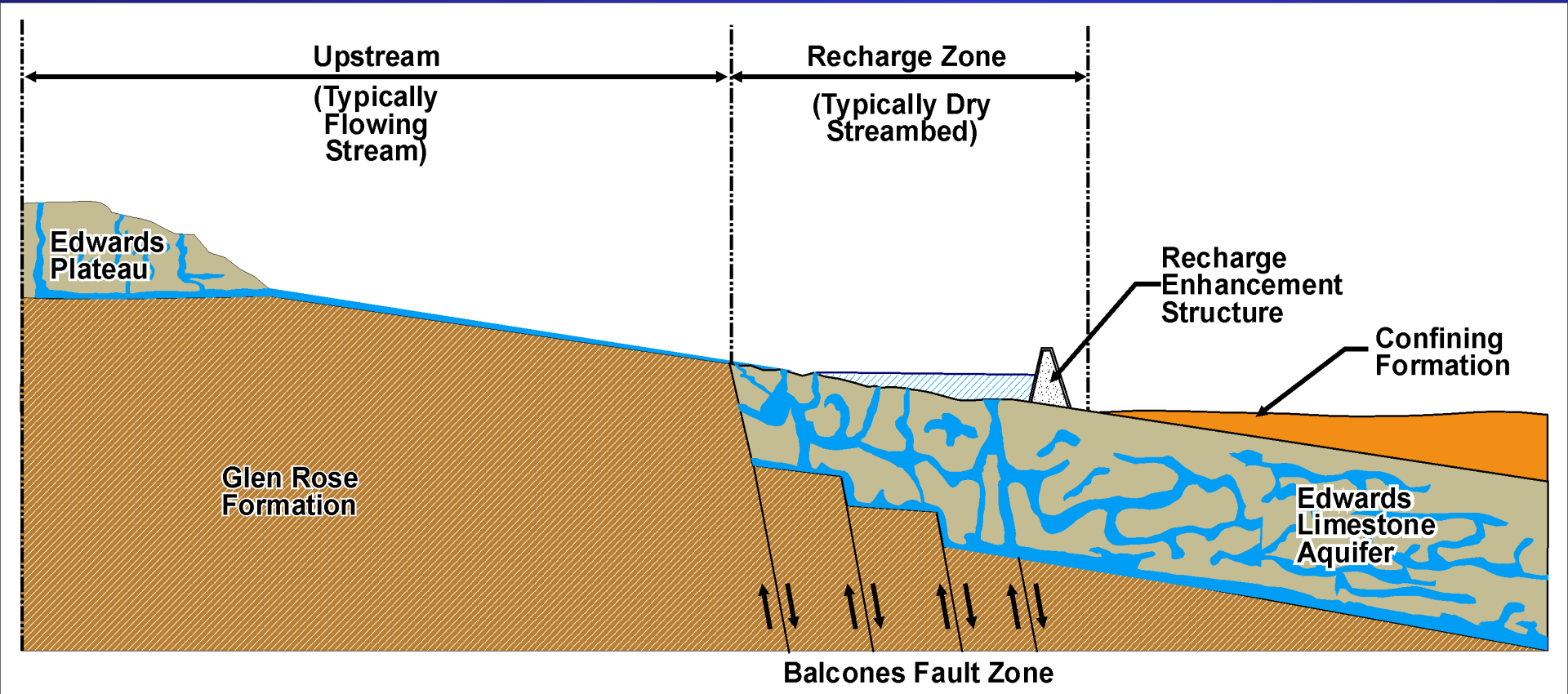
Cibolo Creek Watershed Study Phase 2

Typical Recharge Structure



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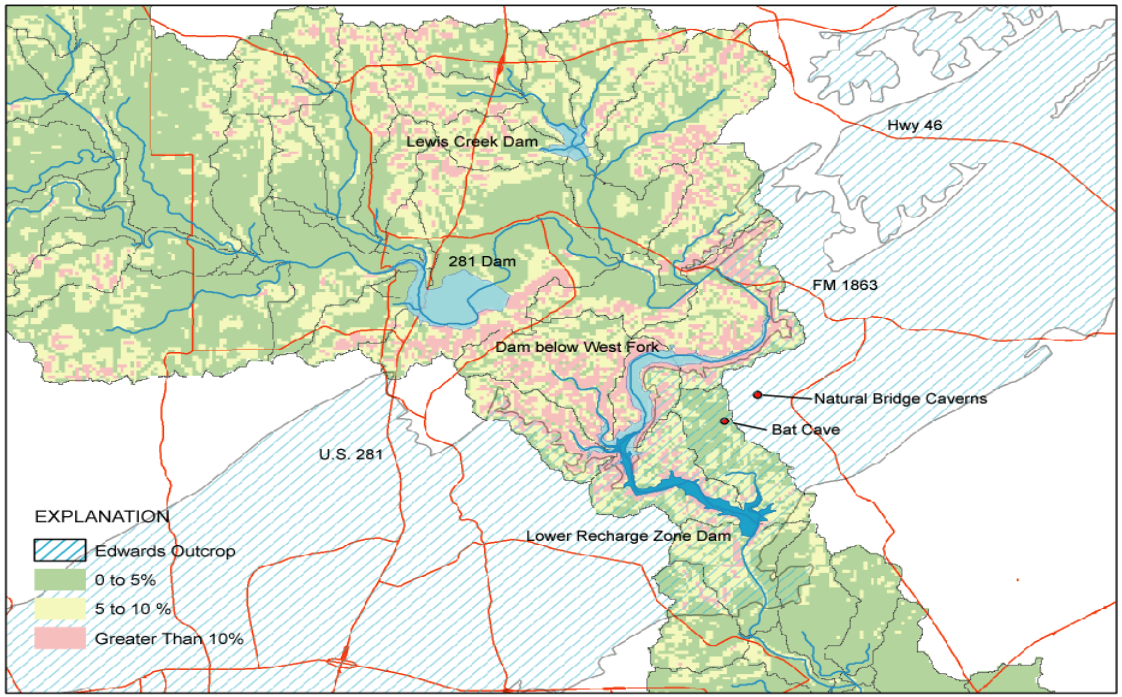
Cibolo Creek Watershed Study Phase 2

Simulated Recharge Structure Sites in the Cibolo Creek Watershed



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Cibolo Creek Watershed Study Phase 2

	Large Recharge Structure		Small Structure
	281 Site	Recharge Zone	
Height	60’	80’	20’-30’
Storage	5,000 acre-feet	10,000 acre-feet	300-1,000 acre-feet
Outflow	5’ culvert	5’ culvert	5’culvert

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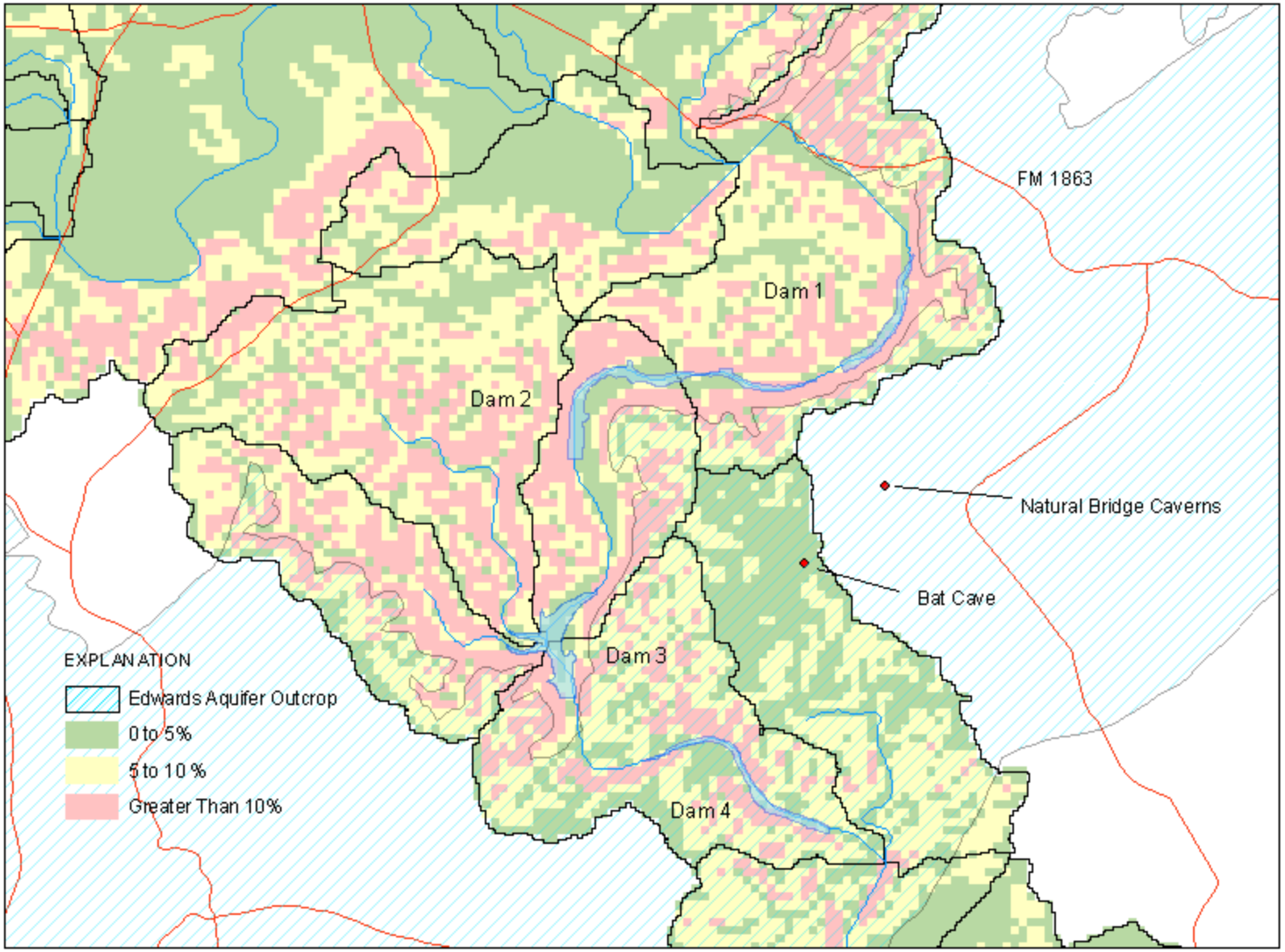
Cibolo Creek Watershed Study Phase 2

	Large Recharge Structure		Small Structure
	281 Site	Recharge Zone	
Channel Infiltration Trinity	22% ±	N/A	N/A
Channel Infiltration Edwards	3% +	18% +	5% +
Decrease in Oct. 98 peak flow at USGS Gage at Selma	10 % or 1.5’ in Stage	25% or 4’ in Stage	4% or 1’ in Stage

Simulated Low-Rise Dams on the Edwards Aquifer - Cibolo Creek Watershed



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Cibolo Creek Watershed Study Phase 2

- Phase 1 Identified Flooding Problems in Schertz and Selma
- The recharge structures would provide reduction in flood stages
- Additional measures are being considered to reduce flooding in Schertz

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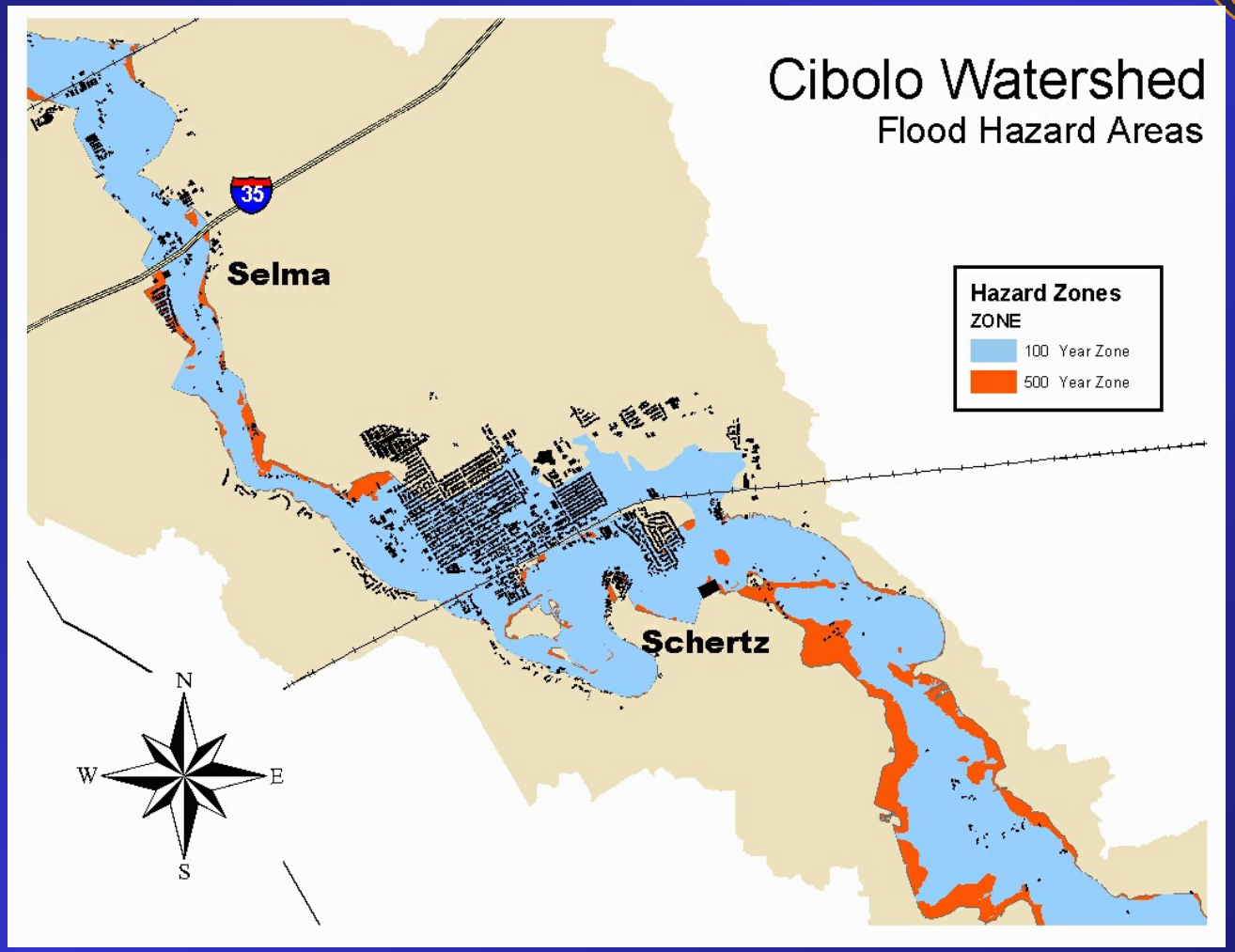
Cibolo Creek Watershed Study Phase 2



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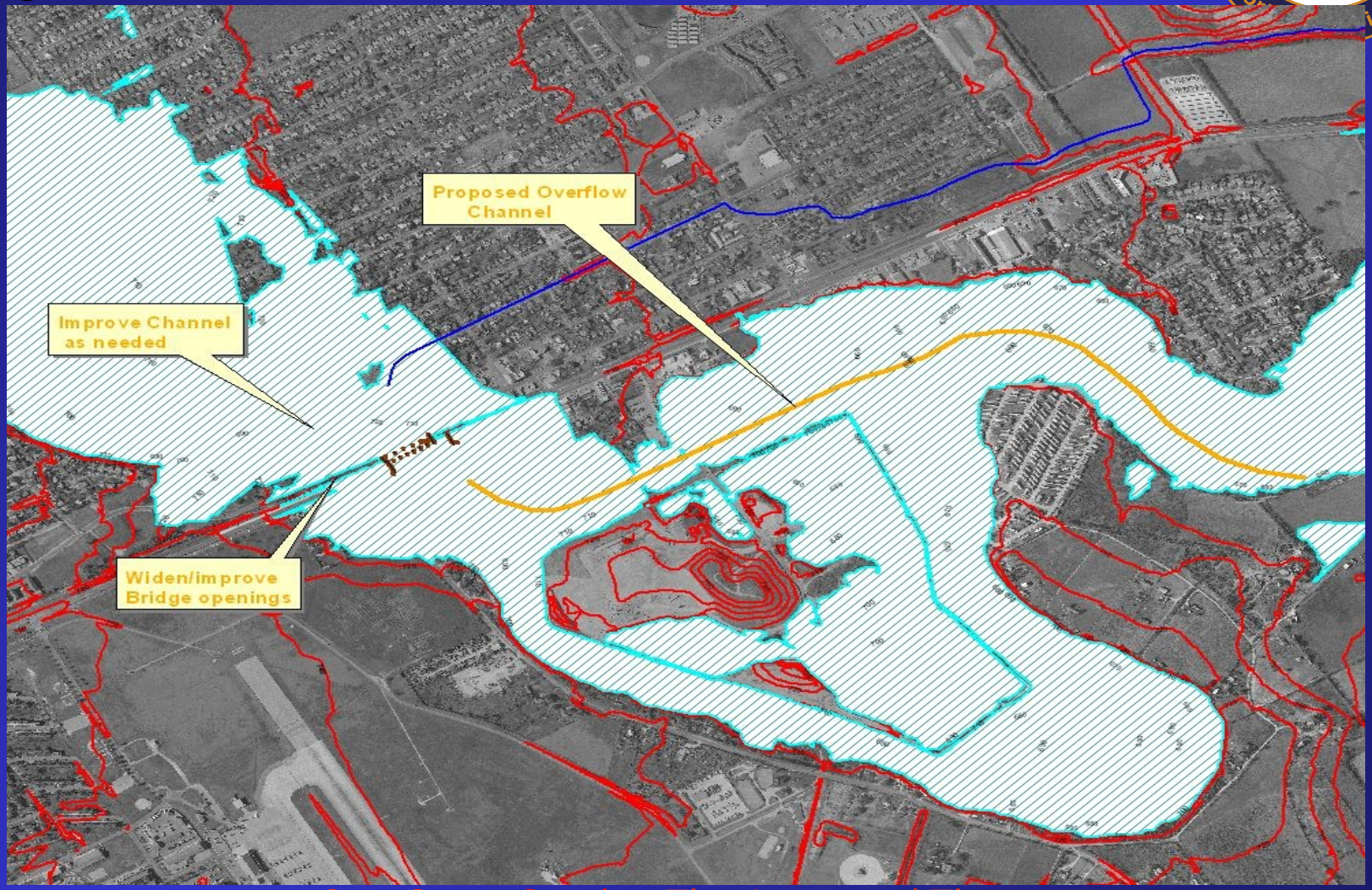
Cibolo Creek Watershed Study
Flood Damage Reduction



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Cibolo Creek Watershed Study
Phase 3

Feasibility Study Phases

- Phase 1 - Existing Conditions
- Phase 2 - Evaluate Possible Improvement Scenarios
- **Phase 3 - Detailed Evaluation of Alternatives**

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Cibolo Creek Watershed Study Phase 3

Phase 3 Detailed Evaluation of Alternatives

During Phase 3, a recommended plan will be selected to go forwarded for USACE headquarters approval

Preconstruction, engineering and design (PED) will begin if approved

Project will have to Approved and Appropriated by Congress before construction begins

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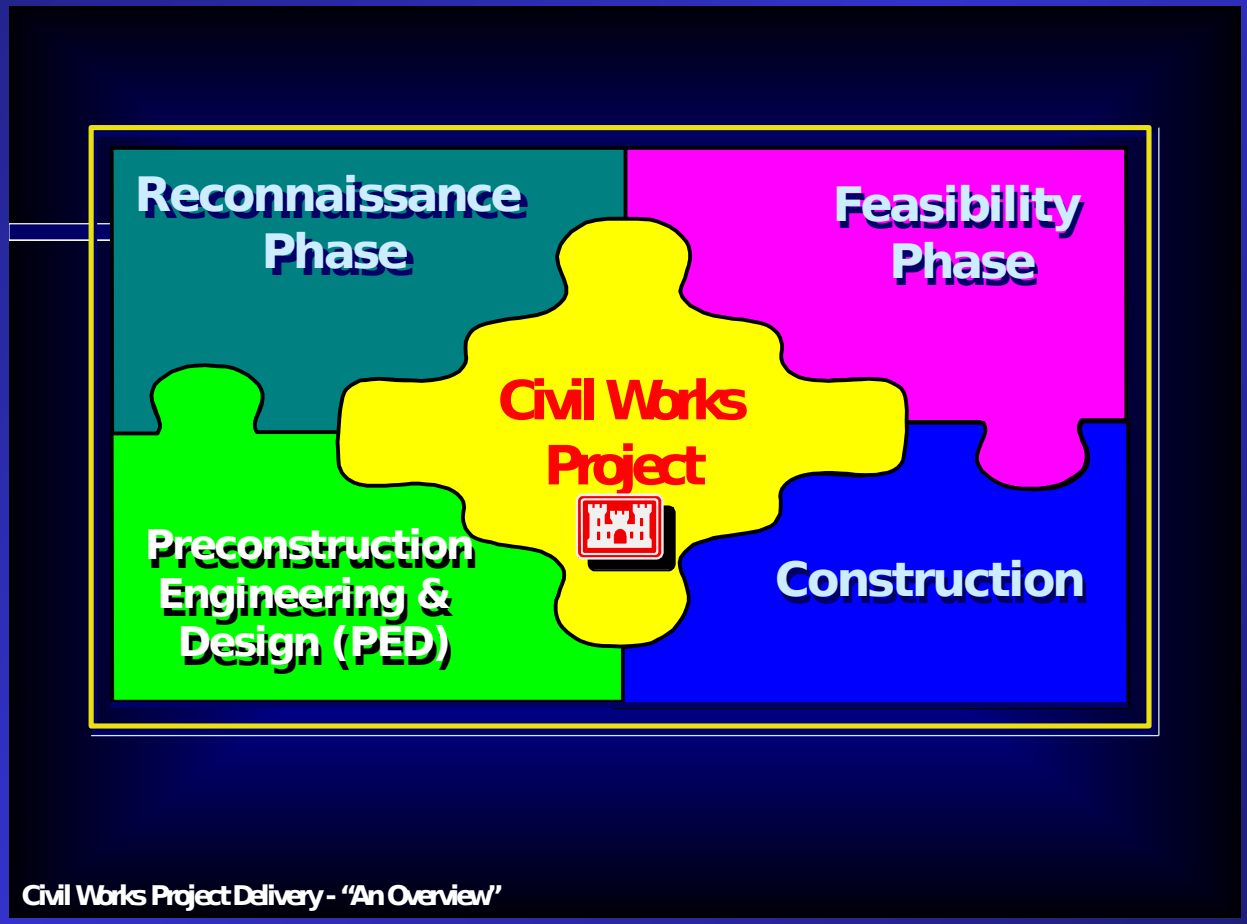
Cibolo Creek Watershed Study
General Overview

US Army Corps of Engineers 1950 50 YEARS 2000 Fort Worth District

Planning Study Process



Cibolo Creek Watershed Study

Summary

- Watershed exhibits degradation in select ecosystems
- Flooding exists in the cities of Schertz and Selma
- Modeling efforts show potential to increase recharge and reduce flooding

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Cibolo Creek Watershed Study

Point of Contact

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